

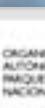
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MAB's work engages fully with the international development agenda – specially with the Sustainable Development Goals and the Post 2015 Development Agenda – and addresses challenges linked to scientific, environmental, societal and development issues in diverse ecosystems; from mountain regions to marine, coastal and island areas; from tropical forests to drylands and urban areas.

This publication summarizes the activities undertaken by the MAB Programme and its World Network of Biosphere Reserves in 2012 and 2013.

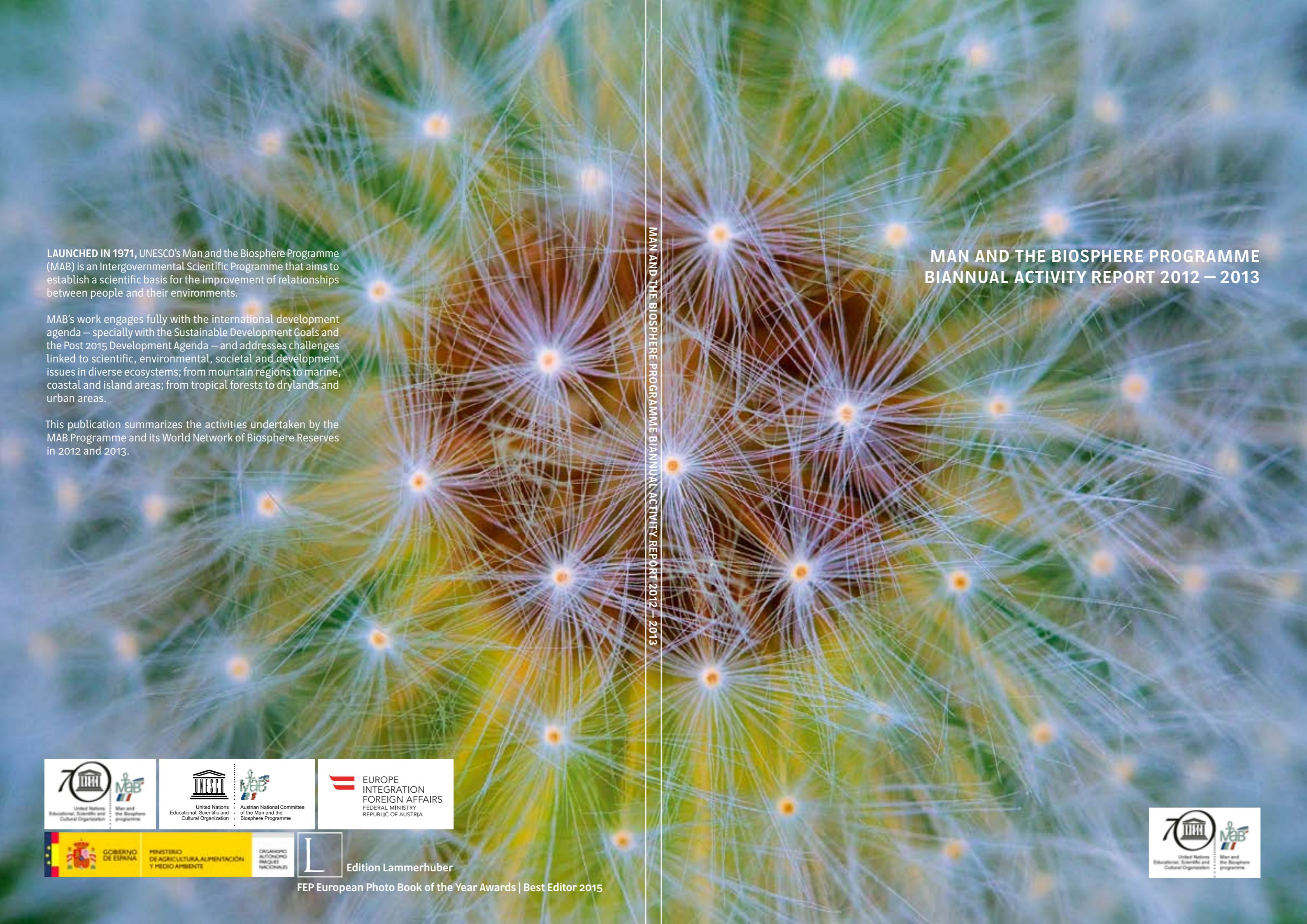
MAN AND THE BIOSPHERE PROGRAMME BIANNUAL ACTIVITY REPORT 2012 – 2013

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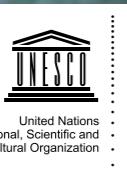
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United Nations
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United Nations
Educational, Scientific and
Cultural Organization

MAB
Man and
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programme



Austrian National Committee
of the Man and the
Biosphere Programme



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Y MEDIO AMBIENTE



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United Nations
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Cultural Organization

MAB
Man and
the Biosphere
programme



**FOREWORD BY THE DIRECTOR OF THE DIVISION OF ECOLOGICAL AND EARTH SCIENCES,
SECRETARY OF THE MAN AND THE BIOSPHERE (MAB) PROGRAMME**

SINCE 1971, THE MAN AND THE BIOSPHERE (MAB) PROGRAMME has endeavoured to improve the relationship between people and the environment. Combining natural and social sciences as well as economics, education and capacity building, the MAB programme has promoted the sustainable use and conservation of biological diversity.

MAB has also worked to establish regional and thematic networks as well as partnerships with UN agencies, governments, NGOs, academia and the private sector in order to meet global challenges and generate sustainable and long-term impacts.

In 2012, 20 new sites were added to the World Network of Biosphere Reserves (WNBR) with a further 12 sites added in 2013. These new additions brought the total number of biosphere reserves to 621 in 117 countries. Today, the network amounts to 631 sites in 119 countries, including 14 transboundary biosphere reserves.

Following the mandate of the MAB programme, the biosphere reserves in these different countries have worked actively to improve human livelihoods and to safeguard natural and managed ecosystems, while promoting new socially, culturally and environmentally appropriate economic development approaches.

The following publication presents the global activities and achievements of the MAB programme in 2012 – 2013. The international MAB family has worked together on different educational, research and capacity-building activities, including the strengthening of North-South and South-South collaboration. This collaborative work is based on the understanding that the exchange of knowledge and experiences, and the promotion of good practices is a fundamental and unique tool to promote improvements in people's lives, and to increase local capacity for the sustainable management of ecosystems.

Han Qunli

MAN AND THE BIOSPHERE (MAB) is one of the oldest and most important of UNESCO's programmes. Austria was one of the first Member States to become involved in the programme with the establishment in 1973 of the Austrian National MAB Committee at the Austrian Academy of Sciences (ÖAW), based on an agreement with the Federal Ministry of Science, Research and Economy (BMWFW). The Committee was endowed with a separate research budget, and charged with coordinating and advancing MAB research and supporting the planning and management of biosphere reserves.

In the four decades of its existence, the Austrian MAB Committee has pursued these goals and contributed to developing the international MAB programme, as well as funding numerous research projects. The Republic of Austria also supports the MAB programme through the MAB Young Scientist Awards scheme.

Austria aims to continue its involvement in this UNESCO flagship programme. As the relationship between human beings and the environment becomes increasingly unbalanced and climate conferences move from one compromise to the next, the need for programmes such as MAB has never been clearer. With a World Network of Biosphere Reserves, representing a global platform of linked research and education sites, MAB not only implements sustainable approaches to the environment – it also studies it and offers practical solutions, as shown in this MAB biannual activity report 2012–2013. The activities presented here provide a small glimpse of the activities taking place in biosphere reserves across the world.

We would like to use this opportunity to express our sincere gratitude to the MAB Secretariat for its successful and committed work on behalf of the MAB network.

Arne Arnberger

Chair of the Austrian MAB National Committee

Günter Köck

Executive Secretary of the Austrian MAB National Committee

Wolfgang Waldner

Director General, Austrian Federal Ministry for Europe,
Integration and Foreign Affairs



**FOREWORD BY THE DIRECTOR OF THE SPANISH NATIONAL PARKS AUTONOMOUS AGENCY,
VICE-CHAIRMAN OF THE SPANISH MAB NATIONAL COMMITTEE**

THE WORLD NETWORK OF BIOSPHERE RESERVES was established by UNESCO's Man and Biosphere Programme (MAB) over 40 years ago, and has amassed significant experience in sustainable development practice and progress related to ecosystems and land management around the world.

The growth and current dynamism of the MAB Programme is made possible by collaborations with states, the scientific community, biosphere reserves and other stakeholders. The present report reflects the programme's activity during 2012 and 2013.

The Spanish MAB Committee was established in 1974 with strong links to the scientific community. It has gradually opened up to other social sectors and now has over 30 members, including representatives of the State administration, autonomous governments, local entities, academia, scientists, reserve managers and various social and economic sectors. The Committee functions as a platform for coordination and exchange, and also supports the Spanish Biosphere Reserve Network, which consists of 45 sites including two transboundary sites, one shared with Morocco and one with Portugal.

Spain has invested substantial effort in the development of the World Network of Biosphere Reserves, and has supported actions carried out by UNESCO to develop the MAB programme. The Seville Strategy and the Statutory Framework (1995) and the Madrid Action Plan (2008) were the outcomes of MAB meetings held in Spanish cities and supported by the Spanish government. Spain has also provided support to other regional or thematic networks including the IberoMaB Network, RedBios and the World Network of Island and Coastal Biosphere Reserves, among others. In 2013, the first MAB Category II Centre under the auspices of UNESCO was established in Spain. The International Centre on 'Mediterranean Biosphere Reserves, Two Coastlines United by their Culture and Nature' will provide an excellent platform of information exchange and sharing on all issues related to biosphere reserves and their sustainable development.

The work of the MAB programme resonates strongly throughout the Spanish territories, especially in rural areas. Because of the significant value of this programme, Spain will continue to collaborate and provide its full support to UNESCO in this field. Spain will also continue to provide best practices and experience as a contribution to the success of the MAB programme worldwide.

Basilio Rada Martínez



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THE MAN AND THE BIOSPHERE PROGRAMME

IMPROVING THE RELATIONSHIP BETWEEN PEOPLE AND THEIR ENVIRONMENTS.

Launched in 1971, UNESCO's Man and the Biosphere (MAB) programme is an Inter-governmental Scientific Programme that aims to establish a scientific basis for the improvement of relationships between people and their environments.

The MAB programme engages fully with the international development agenda, and in particular with the Sustainable Development Goals and the Post-2015 Development Agenda. Its actions address challenges linked to scientific, environmental, societal and development issues in diverse ecosystems – from mountain regions to marine, coastal and island areas, and from tropical forests to drylands and urban areas.

The MAB programme combines the natural and social sciences, economics and education to improve human livelihoods and the equitable sharing of benefits, and to safeguard natural and managed ecosystems. It promotes innovative approaches to economic development that are environmentally sustainable and socially and culturally appropriate.

The MAB programme provides a unique platform for cooperation on research and development, capacity-building and networking to share information, knowledge and experience on three interlinked issues: biodiversity loss, climate change and sustainable development. It not only contributes to better understanding of the environment, but also promotes greater involvement of science and scientists in policy development concerning the wise use of biological diversity.

HOW DOES THE MAN AND THE BIOSPHERE PROGRAMME WORK? UNESCO's inter-governmental structure provides MAB with a framework to help national governments provide technical assistance and scientific advice to support the planning and implementation of research and training programmes.

Participating countries establish MAB National Committees that ensure maximum national participation in the international programme, defining and implementing each country's activities. The MAB programme currently operates through 158 National Committees established among the 195 Member States and nine Associate Member States of UNESCO.

The International Coordinating Council is the main governing body of the MAB Programme and is responsible for defining its agenda. The Council consists of 34 Member States elected by UNESCO's General Conference. The Council elects a chair and five vice-chairpersons from each of UNESCO's geopolitical regions, one of which functions as a rapporteur. These constitute the MAB Bureau.

The MAB Secretariat is based at UNESCO's Division of Ecological and Earth Sciences, in Paris, and works closely with the different field offices around the world to coordinate the work of the MAB programme at national and regional levels. Its staff members draw on expertise in many and varied disciplines.

The MAB programme is funded through the regular budget of UNESCO and mobilizes funds-in-trust granted by Member States, bilateral and multilateral sources, and extra-budgetary funds provided by countries, private sector and partner institutions. MAB-related activities are financed at the national level. The programme can grant seed funding to aid countries to develop projects and/or secure appropriate partnership contributions.

THE WORLD NETWORK OF BIOSPHERE RESERVES: SITES OF EXCELLENCE.

The World Network of Biosphere Reserves (WNBR) of the MAB programme consists of a dynamic and interactive network of sites of excellence. It works to foster the harmonious integration of people and nature for sustainable development through participatory dialogue, knowledge sharing, poverty reduction, human well-being improvements, respect for cultural values and improvement in society's ability to cope with global change. It promotes North-South and South-South collaboration and represents a unique tool for international cooperation through the exchange of experiences and know-how, capacity-building and the promotion of best practices.

The WNBR is a network of natural environments dedicated to interdisciplinary research, capacity-building, and management and experimentation with innovative combinations of economic, environmental and energy alternatives for sustainable development.

In 1995, the Seville Strategy for Biosphere Reserves and the Statutory Framework for the World Network of Biosphere Reserves recommended a series of actions to ensure sustainable development for the twenty-first century.

The Madrid Action Plan (MAP), agreed upon and adopted in 2008, built on the Seville Strategy and set the agenda for the MAB programme and the WNBR for the period 2008–2013. At the end of this period, analysis of the achievements of MAP provided guidance and inputs for the next stage of the MAB programme (2014–2021).

WHAT ARE BIOSPHERE RESERVES? Biosphere reserves are areas comprising terrestrial, marine and coastal ecosystems. Each reserve promotes solutions reconciling the conservation of biodiversity with its sustainable use.

Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located. Their status is internationally recognized.* Biosphere reserves are 'Science for Sustainability support sites' – special places for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity.

Biosphere reserves have three interrelated zones that aim to fulfil three interconnected functions, which are complementary and mutually reinforcing:

- The core area(s) comprises a strictly protected ecosystem that contributes to the conservation of landscapes, ecosystems, species and genetic variation.
- The buffer zone surrounds or adjoins the core areas, and is used for activities compatible with sound ecological practices that can reinforce scientific research, monitoring, training and education.
- The transition area is the part of the reserve where greater activity is allowed, fostering economic and human development that is socio-culturally and ecologically sustainable.

* For more information on the criteria necessary to qualify for designation as a biosphere reserve, please consult Article 4 of the Statutory Framework for the World Network of Biosphere Reserves.



THE MAN AND THE BIOSPHERE NETWORKS

A VARIETY OF REGIONAL, SUB-REGIONAL AND THEMATIC NETWORKS provide support to the World Network of Biosphere Reserves. During 2012–2013 the different networks undertook the following activities:

The ArabMAB Network was officially launched in 1997 and represents 18 Arab countries. In 2013, the network organized its 8th ArabMAB meeting together with a technical workshop on 'Green Economy and Biosphere Reserves', held in the Dana Biosphere Reserve, Jordan (12–13 April).

The African Biosphere Reserves Network (AfriMAB) was created in 1996 and comprises 33 African countries. In 2013, it organized its third General Assembly and the Regional Meeting of the African Network of Biosphere Reserves (AfriMAB) in Accra (24–27 September). The meeting was attended by 116 participants from 21 countries from across sub-Saharan Africa, Germany, the Republic of Korea, the Sub-Global Assessment Network, UNESCO and the West African Economic and Monetary Union (WAEMU). The keynote speakers at the official opening ceremony included Prof. Naana Jane Opoku-Agyeman, Minister for Education, and Hon. Dr Paul Joe Oteng-Adjei, Minister for the Environment, Science, Technology and Innovation (MESTI).

The theme of the meeting was 'The Role of Ecosystems Services in Boosting Green Economies in Biosphere Reserve'. This provided a platform for participants to learn about and exchange information on harnessing ecosystems services to develop green economies in biosphere reserves.

As per the Charter and Statutes of AfriMAB, a new Bureau was elected during the meeting (Chairman: M. Daniel Amlalo, Executive Director of the Environmental Protection Agency (EPA), Chairman of Ghanaian MAB National Committee, Ghana). The Bureau will hold office until the next General Assembly, scheduled in 2015.



Members of the new AfriMAB Bureau, AfriMAB meeting in Accra, Ghana.
© Ghana MAB National Committee

The East Asian Biosphere Reserve Network was launched in 1994 and consists of China, the Democratic People's Republic of Korea, Japan, Kazakhstan, Mongolia, the Republic of Korea and the Russian Federation. In 2013, the network met in Ulaanbaatar and Hustain Nuruu Biosphere Reserve, Mongolia (21–25 October). More than 50 representatives from all seven Member Countries, as well as experts from the Ministry of Environment and Green Development of Mongolia, the Mongolian National Commission for UNESCO and the UNESCO Office in Beijing participated in this meeting. Participants reviewed activities undertaken by network members during 2012 and 2013, presented scientific papers, and reported on local, national and regional activities under the theme 'Biological and Social Consequences of Global Change'.

EuroMAB was created in 1987 and consists of 53 countries that form a network of biosphere reserves in Europe and North America. The EuroMAB 2013 meeting took place in Frontenac Arch Biosphere, Canada (15–19 October) and brought together over 190 delegates from 27 European and North American countries.

The meeting was organized around several key issues, goals and priorities: building the capacity of biosphere reserves to be more self-sufficient, promoting the network, and addressing the new strategic direction of the MAB programme for 2014–2021. The event, held under the theme 'Engaging our Communities', placed particular emphasis on engaging with local populations, as well as partners from first Nations, academia, businesses, non-profit organizations and government.



EuroMAB meeting,
Frontenac Arch
Biosphere, Canada.
© Toomas Kokovkin

The South and Central Asia MAB Network (SACAM) was created in 2002 and comprises Afghanistan, Bangladesh, Bhutan, India, Iran, Kazakhstan, Maldives, Nepal, Pakistan and Sri Lanka. In 2013, the network organized the 5th SACAM Meeting (26–28 November) and ECO Workshop (29–30 November), held in Islamabad. The meeting, whose theme was 'Harmonizing community livelihood with Biodiversity Conservation', brought together representatives of all SACAM Member States.

The Southeast Asian Biosphere Reserve Network (SeaBRnet) was created in 1998 and comprises Cambodia, China, Indonesia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Thailand and Viet Nam. In 2013, it organized the 7th SeaBRnet meeting in Puerto Princesa, Palawan Biosphere Reserve, Philippines (23–27 October 2013) to discuss partnerships and the green economy in biosphere reserves.

More than 80 participants attended the opening session, including representatives from MAB National Committees and MAB focal points in the region, the UNESCO National Commission for the Philippines, staff of the Palawan Council for Sustainable Development, local government and NGOs. The experiences highlighted at the meeting underlined the importance of public-private partnerships, the green economy and sustainability for biosphere reserves, as well as the need to build social capital to ensure equity and long-term benefits to local economies, and the role of biosphere reserves in defining and delivering the Post-2015 Agenda.

The East Atlantic Biosphere Reserve Network (REDBIOS) was created in 1994 and comprises the Canary Islands (Spain), Cape Verde, Guinea Bissau, Madeira and Azores (Portugal), Mauritania, Morocco, São Tomé and Príncipe, and Senegal. In 2013, the network met at the Biosphere Reserve of the Island of Príncipe, Democratic Republic of São Tomé and Príncipe (3–9 May) for its 11th International Meeting.

The biosphere reserves of the REDBIOS Network agreed to reinforce their commitment to the development of the MAB programme by creating a collaborative platform that promotes and supports interaction both among the biosphere reserves, and between the reserves, the MAB national committees, public and governmental entities, and other geographical and thematic networks within the MAB programme.

The REDBIOS Network established the following priority work areas: natural resource management, education and knowledge, conservation and sustainable use of biodiversity, enhancement and integrated management of the landscape, and management of quality economic processes. These areas will be supported by biosphere reserve brands and certification systems, the promotion of responsible tourism, and the use of information and communication technologies as management tools.



11th International Meeting of the East Atlantic Biosphere Reserve Network, Democratic Republic of São Tomé and Príncipe.
© Antonio Abreu

The World Network of Island and Coastal Biosphere Reserves was established in 2012 and comprises 22 countries. Its first meeting took place in Menorca, Spain (13–15 February 2012) to discuss common compelling issues regarding island and coastal biosphere reserves, to exchange experiences, and to establish long-term plans in response to changes in biosphere reserve areas. The network decided to further improve its role by developing sustainable biodiversity conservation strategies and researching the suitable utilization of biodiversity.

The second meeting of the network was hosted by Jeju Island Biosphere Reserve, Republic of Korea (12–13 September 2012). At the end of the meeting the participants agreed to work to increase donations for the network, as well as the number of members. They also decided to promote joint research projects, hold network meeting on a regular basis, and draft an Initiative Plan for 2013–2014.

The third meeting of the network took place in the Islands of Hiumaa and Saaremaa, at the West-Estonian Archipelago Biosphere Reserve in Estonia (3–7 June 2013). The purpose of the meeting was to bring together representatives of island and coastal biosphere reserves to discuss the main challenges and threats facing these areas, including climate change, waste management, and water, energy and food self-sufficiency, and to share experiences and potential solutions.



3rd Meeting of the World Network of Island and Coastal Biosphere Reserves, Estonian Archipelago biosphere reserve.
© Miguel Clüsener-Godt.

WORKING ON EDUCATION AND CAPACITY-BUILDING

THE MAB PROGRAMME CONTRIBUTES TO GLOBAL EFFORTS for education and capacity-building through workshops, training courses, educational programmes and partnerships with professional and educational institutions. The following activities were undertaken during 2012–2013.

Regional School on Integrated Management of Tropical Forests and Territories (ERAIFT). This postgraduate training course in tropical forest management at the University of Kinshasa (Democratic Republic of Congo) trains some 30 specialists from African countries each year. The in situ course is designed to prepare a new generation of African specialists and decision-makers to apply the ecosystem approach to forest management in Africa. Students from 23 countries have been trained to date.



Graduated students
at ERAIFT.
© ERAIFT

Environmental management courses at the Technical University of Dresden (Germany). These courses are a collaborative initiative organized by UNESCO, the United Nations Environmental Programme and the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety. This international environmental management training, offered by Technische Universität Dresden, has trained over 1,900 participants from 136 countries around the world.

University Twinning and Networking Programme/UNESCO Chairs. There are currently 47 UNITWIN/UNESCO Chairs related to biosphere reserves and sustainable development. During 2012–2013 two new chairs were created: the UNESCO Chair on 'Biosphere Reserves and urban environment' at the Institute of Ecology in Xalapa, Mexico, and the UNESCO-Cousteau Ecotechnic Chair in 'Training of specialists in planning and sustainable development of coastal zones' at the Pontifical Catholic University of Chile in Santiago, Chile.

A Workshop on Ecosystem Services in Biosphere Reserves was held at the East Vättern Scarp Landscape Biosphere Reserve in Jönköping, Sweden (13–14 September 2012). Thirty-seven participants from nine countries, including managers and coordinators from biosphere reserves in the EuroMAB network, as well as from South Africa, met to learn about the concept of Ecosystem Services and its application to landscape management.



Workshop on Ecosystem Services in Biosphere Reserves, East Vättern Scarp Landscape Biosphere Reserve, Sweden.
© Meriem Bouamrane

The MAB programme and the island of Jeju Biosphere Reserve (Republic of Korea) organized a **Training Course for Island and Coastal Area Biosphere Reserves Managers**, held in the island of Jeju (21–25 October 2013). The aim of this course was to raise the awareness of biosphere reserve managers of the vulnerability of island and coastal biosphere reserves to climate change and to transfer technical knowledge.

The E-learning course on Management of Biosphere Reserves and other designated areas (25 March – 21 April 2013) was based on the UNESCO publication *Education for Sustainable Development in Biospheres Reserves and other Designated Areas: A Resource Book for Educators in South-Eastern Europe and the Mediterranean*.

The e-course provided basic training for adult learners on applying the UNESCO resource book, based on given scenarios and real life situations. The course aimed to build learners' capacities regarding the use of biosphere reserves and other designated areas in South-Eastern Europe and the Mediterranean region as learning and demonstration sites for the application of holistic education for sustainable development programmes.

The University of La Rioja Foundation (Spain) and the MAB programme organized a summer course in Logroño, Spain (25–27 June 2013) to promote social participation in the development of biosphere reserve management and to analyse its contribution to the World Network of Biosphere Reserves.

The MAB Programme recognizes outstanding work in biosphere reserves through several different awards:

MAB Young Scientists Award: helping young people help the planet. Since 1989, MAB has presented annual awards of up to US\$ 5,000 to young researchers in support of their research on ecosystems, natural resources and biodiversity. Through the MAB Young Scientists Awards, the MAB programme invests in a new generation of scientists worldwide, as their work is vital to addressing ecological and sustainability issues. Since 2010, the Austrian MAB Committee has financed two additional special awards.

In 2012, the following researchers received awards: A.D. Martial Kiki (Benin), Kabran Aristide Djane (Côte d'Ivoire), Nouran Mohamed Saeed (Egypt), Sathish Kumar V.M. (India), Purity Sabila Ajiningrum (Indonesia), Guindo Zeïnabou Maïga (Mali), Alexandra Shatkovskaya (Russian Federation), Rocio Hiraldo Lopez-Alonso (Senegal), Fatou N'diaye

(Senegal), Ancana Prathee (Thailand), Anoumou Kemavo (Togo) and Nataliya Stryamets (Ukraine).

In 2013, following researchers received awards: Hilaire Kouakou (Côte d'Ivoire), Bilal Habib (India), Atieh Kazemi Mojarrad (Iran), Angela Camargo (Mexico), Claudia Munera (Nicaragua) and Julio Blas Garcia (Spain).

The Michel Batisse Award is awarded in memory of Dr Michel Batisse for excellence in the management of biosphere reserves in line with the recommendations of the Seville Strategy.

In 2012, the Award was presented to Elizabeth Ines Taylor Jay (Colombia) for her case study on 'Improving sustainable development and coral reef conservation through community-based watershed management in the Seaflower Biosphere Reserve'. In 2013, the Award was presented to Marisa Coetzee and Harry Biggs (South Africa) for their case study concerning the South African Kruger to Canyons Biosphere Reserve.



Angela Camargo,
MAB Young Scientists
Award 2013.
© UNESCO



Elizabeth Inés Taylor
Jay, Prof. Boshra Salem
(Chairman of the MAB ICC),
Michel Batisse Award 2012
© UNESCO/P. Chiang-Joo



Ms Schumsa Mancotywa
(Dept of Environmental
Affairs), Prof. Boshra Salem
(Chairman of the MAB ICC)
and Dr Marisa Coetzee
(Michel Batisse Award 2013)
© UNESCO/P. Chiang-Joo

The UNESCO Sultan Qaboos Prize for Environmental Preservation recognizes outstanding contributions in the management or preservation of the environment, consistent with the policies, aims and objectives of UNESCO, and in relation to the Organization's programmes in this field (i.e. environmental and natural resources research, environmental education and training, creation of environmental awareness through the preparation of environmental information materials and activities aimed at establishing and managing protected areas such as biosphere reserves and natural World Heritage sites).

The prize is awarded every two years. As of 2013, the amount of the prize is US\$ 70,000, a donation graciously made by His Majesty Sultan Qaboos Bin Said of Oman.

The 2013 UNESCO Sultan Qaboos Prize for Environmental Preservation was awarded to the State Forests National Forest Holding of Poland and South Africa's Endangered Wildlife Trust during the opening of the World Science Forum in Rio de Janeiro, Brazil (24 November).



Mr Adam Wasiak,
Director-General of the
State Forests National
Forest Holding; Ms Irina
Bokova, Director-General
of UNESCO; H.E. Dr. Madiha
Al Shaibani, Minister of
Education, Sultanate
of Oman; Harriet
Davies-Mostert, Head
of Conservation Science
Endangered Wildlife Trust.
© UNESCO

MEETING GLOBAL CHALLENGES THROUGH COLLABORATIVE WORK AND PARTNERSHIPS

MEETING GLOBAL CHALLENGES and creating sustainable and long-term impacts is only possible through the collaborative work of a broad partnership.

During the 2012–2013 period MAB continued to work with other UN agencies, international and national partners, different governments, NGOs, academia and the private sector, and promoted North-South and South-South cooperation. The following section presents some examples of such partnerships:

UNESCO International Category II Centre on 'Mediterranean Biosphere Reserves, Two Coastlines United by their Culture and Nature'. This first Category II Centre of the MAB Programme is located within the premises of the Abertis Foundation in Castellet i la Gornal, Spain, and was established in November 2013 under the auspices of UNESCO. This international centre will serve as a model for scientific cooperation between the two shores of the Mediterranean and provide an excellent platform for information exchange and sharing on all issues related to biosphere reserves and their sustainable development.

The Centre collaborates closely with the Ministry of Agriculture, Food and Environment and its Autonomous Organism for National Parks (OAPN) and combines public engagement and private financial support.

Located in the medieval castle of Castellet, restored by the Abertis Foundation, the Centre documents scientific research and knowledge on all biosphere reserves in the Mediterranean basin. The Centre will act as a platform for training and transferring advanced knowledge on environmental and societal issues between developed and developing countries in the Mediterranean basin and will facilitate joint programmes between biospheres reserves.

The primary objectives of the Centre will be to collect, structure, synthesize and disseminate experiences acquired in biosphere reserves in the Mediterranean area, starting with those of Spain, as a contribution to advancing scientific knowledge within the World Network of Biosphere Reserves. The Centre will also act as a laboratory to devise tools to improve the dissemination of scientific data, and design informative and training activities for implementation within the Network.



Inauguration of the first UNESCO Centre for Mediterranean Biosphere Reserves, Castellet i Gornal, Barcelona, Spain.
© Miguel Clüsener-Godt

Great Apes Survival Partnership (GRASP). This innovative and ambitious partnership run by UNESCO and the United Nations Environment Programme (UNEP), comprises states faced with an immediate challenge: to lift the threat of imminent extinction faced by gorillas (*Gorilla beringei*, *G. gorilla*), chimpanzees (*Pan troglodytes*), bonobos (*Pan paniscus*) and orangutans (*Pongo abelii*, *P. pygmaeus*) across their ranges in Equatorial Africa and Southeast Asia.

This alliance brings together 95 partners, including UN agencies, great apes range states, non-range states, intergovernmental organizations, conservation organizations and the private sector. Several biosphere reserves are home to great apes.



© Great Apes Survival Partnership (GRASP)

UNESCO–CHIC Group (China) Biosphere Integrated Rural Urbanization Programme (BIRUP) seeks to integrate rural land consolidation with new agricultural projects, training of farmers, expansion of urbanized rural villages, crop production, food processing, training, education and a new sustainable, high-tech education and science entrepreneur city, which emphasizes agricultural, agribusiness and rural sciences.

The BIRUP programme constitutes a first step in building a new and more harmonious relationship between peoples living in urban areas and the surrounding rural zones on which they are dependent for ecosystem goods and services (e.g. clean water, food, renewable energy and recreational opportunities). Actions piloted in Ba'nan, Chongqing, are likely to be replicable elsewhere in Asia and other continents. The programme also facilitates exchange and learning among urban areas, BIRUP pilot sites and UNESCO biosphere reserves.

Biosphere Connections is a unique global corporate social responsibility initiative of the airline coalition Star Alliance network, which has been underway since 2007. It is dedicated to supporting sustainability by flying environmental field workers, scientists and educators across the global UNESCO Man and the Biosphere network to help further their knowledge, skills and understanding of major environmental issues and initiatives, and to help conserve some of the world's most unique habitats.



Danone Waters Germany provides generous financial support to projects that aim to improve or safeguard water quality (lakes, rivers, subterranean waters) in the 15 biosphere reserves in Germany.

The partnership seeks to increase the visibility of biosphere reserves and their activities, especially in cooperation with the new brand 'Volvic Landfrucht'.

A wide-angle photograph of a coastal scene at night. The foreground is dark, rocky ground. In the middle ground, a person stands facing the sea, holding a small glowing object. The background is a vast, dark sky filled with numerous stars of varying brightness. A prominent, curved light pollution glow from a nearby town or city is visible along the horizon, creating a bright band of orange and yellow light against the dark sky.

The Starlight Initiative is an international project in defence of the values associated with the night sky and the general right to observe the stars. It is open to the participation of all scientific, cultural, environmental and civic organizations and associations, as well as public institutions and other public and private bodies willing to effectively cooperate in the conservation of clear skies and the dissemination of knowledge related to their observation. The final aim of the initiative is to strengthen the importance of clear skies for humankind, emphasizing and introducing the value of this endangered heritage for science, education, culture, technological development, nature conservation and tourism, as well as undermining its importance for quality of life.

Fuerteventura Biosphere Reserve, Spain © Carlos de Saa.

NEW BIOSPHERE RESERVES IN 2012

BIOSPHERE RESERVES are areas comprising terrestrial, marine and coastal ecosystems. Each reserve promotes solutions reconciling the conservation of biodiversity with its sustainable use. They serve as places to test different approaches to integrated management of terrestrial, freshwater, coastal and marine resources and biodiversity. Biosphere reserves are thus sites for experimenting with and learning about sustainable development.

Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located.

At its 24th session in Paris (9–13 July 2012), the International Coordinating Council of the MAB Programme added 20 new sites, including two transboundary sites, to the World Network of Biosphere Reserves (WNBR). Biosphere Reserves were inscribed in Haiti, Kazakhstan, and Sao Tome and Principe for the first time this year. The network now consists of 598 reserves in 117 countries.

The biosphere reserves added in 2012 were as follows:



© Nockberg National Park.

included early farming techniques (such as meadows for fodder), trade and mining. The permanent population numbers 33,350 of which 21,000 live in small towns. More than 50% of jobs are found in the construction industry, the public health sector and commercial goods industries (cosmetics, luxury food, wood, rubber, plastics). In the side valleys, the most important job providers are the service sectors including tourism.



© Jarosław Szymański

species. The area represents and protects unique landscapes and traditions on the cultural edge of Eastern and Western Europe. The main economic activities of this area are agriculture, tourism, weekend recreation, and sustainable forestry and fishing.

Salzburger Lungau & Kärntner Nockberge is a representative example of inner-alpine landscapes with high mountains and deep valleys. It is a richly structured landscape ranging from 600 m to 3,000 m above sea level and encompasses typical ecosystems of the Central Alps such as mountain meadows and mires with great biodiversity. Aside from hunting and gathering, important ways for earning a living in the region

AUSTRIA



© Shi Cai

Jinggangshan is based not only on the marvellous landscapes and scenic spots, but also on historical sites linked to China's revolution.

CHINA

Jinggangshan has a mid-subtropical humid monsoon climate and diverse landscapes of mountains, valleys, structural basins and Karst, with elevation varying from 381 m to 1,779 m above sea level. It is the largest continuous area of primary broad leaf forest ecosystem in the whole sub-tropical zone. There are 3,415 higher plant species (with mutant species). Local residents live on agriculture and forest industries, such as rice, potato, vegetables, bamboo and tea-tree oil cultivation.

CHINA



© Zhouwang Fang

Niubeiliang is located at the eastern segment of the Qinling Mountains, with a typical temperate broad-leaved mixed mountain forest system. More than 94% of the area is covered by forest, shared by three administrative counties. It is regarded as an important water conservation region for Xi'an, a provincial city and southern Shaanxi province. Niubeiliang enjoys a high level of biodiversity and is home to many endangered species, including Golden Takin (*Budorcas taxicolor bedfordi*) and

BELARUS POLAND UKRAINE

Dwarf Musk Deer (*Moschus berezovskii*). Local residents in the transition area have developed rural tourism to increase their income. Activities in this zone include agriculture, animal husbandry and forest products. The reserve cooperates with research institutions to develop research, monitoring, training and public awareness programmes.



© Sinisa Golub

Major activities in the area are agriculture, forest management, sand and gravel extraction, industry (diverse types) and ecotourism.



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and fauna. The local population is deeply committed to maintaining the integrity of the ecosystem through the practice of ecologically sustainable agriculture.



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exploitation. The area is one of the three most important hydroelectric power production centres in France. This places considerable pressure on the water and aquatic ecosystems.

Mura-Drava-Danube includes Central Europe's largest floodplain system, as well as areas that formed part of the floodplain prior to river regulation. The areas along the course of both the Danube and the Drava are part of a continuous stretch of habitats extending across the state border. The Mura-Drava River also has a variety of typical plant and animal communities. It contains a variety of wet habitats, including some that are among the most threatened in Europe. Major activities in the area are agriculture, forest management, sand and gravel extraction, industry (diverse types) and ecotourism.

Sheka covers an area of 238,750 ha and consists of forests, bamboo thickets, wetlands, agriculture lands, rural settlements and towns. The forest in Sheka forms part of the Southwest Highlands Forests of Ethiopia, and plays a major role in the conservation of Afromontane forest vegetation types, especially Afromontane Rainforest and Alpine Bamboo thickets. The area is rich in plant and animal life with over 38 threatened species of flora

Bassin de la Dordogne consists of the whole Dordogne watershed, a hydro system covering 24,000 km². The Dordogne's catchment area shelters significant biodiversity and represents a range of mountainous landscapes. It also contains one of the biggest estuaries in Europe. Population density is low and there are no large cities. Main activities include tourism based on natural and cultural heritage, agriculture and forest

CROATIA HUNGARY



© Dieufort Deslorges

of collaboration among countries. Four percent of the Haitian population lives in the biosphere reserve and the main economic activities are agroforestry, fishery, tourism and handicrafts.

ETHIOPIA



© Prodiplo Lahiri

and transition area are characterized by forests, and small suburban clusters. Twenty-seven tribal and non-tribal communities inhabit 418 villages living on agriculture (including the production of medicinal plants) and non-timber products produced in the buffer zone and transition areas.

FRANCE



© LIPI

La Selle is the country's first biosphere reserve. The area includes a large number of different ecosystems (mountain, plain, tropical dry forest and coastal ecosystems) and protected areas, such as La Visite or Forêt-des-pins (with the endemic species, *Pinus occidentalis*). It is located in the ecological continuum of the Jaragua-Bahoruco-Enriquillo Biosphere Reserve of the Dominican Republic and contributes to the Caribbean Biological Corridor as an example

HAITI

Achanakmar-Amarkantak is located at the junction of hill ranges, with topography ranging from high mountains to shallow valleys and plains. Moist deciduous forests constitute 63% of the area. There is a rich biodiversity of great conservation value and different types and methods of forest management are practised inside this site. The core area of Achanakmar-Amarkantak consists of protected forestland, while the buffer zone

INDIA

and rehabilitated land, agricultural and rehabilitated land, and small suburban clusters. Twenty-seven tribal and non-tribal communities inhabit 418 villages living on agriculture (including the production of medicinal plants) and non-timber products produced in the buffer zone and transition areas.

Wakatobi includes the four main islands of Wangi-Wangi, Kaledupa, Tomia and Binongko. It comprises diverse ecosystems with numerous marine and coastal species of seagrass, coral reefs, fish used for consumption and sale, sea birds, turtles, cetaceans and mangroves. About 590 fish species and 396 reefs are found on the Wakatobi Islands. The core area of this site is of significant value for the protection of marine ecosystems and the habitats of various important plant and animal species. Wakatobi is also working to become a learning

INDONESIA

laboratory for researchers, students, local government, NGOs, the public and private sectors, and other stakeholders.



© Aya Biosphere Reserve

Aya is situated in the eastern part of Japan's southern Kyushu Island, and harbours one of the country's largest remaining lucidophyllous forests. The total area of the reserve covers 14,580 ha. This includes Aya Town, located in the transition zone, which has a population of 7,283. The core area includes the preserved district of the Aya Forestry Ecosystem Protected Area and forms part of the Kyushu Central Mountains Quasi National Park. The area has never been used for human activities and is the object of scientific studies on the structure, function and dynamics of the lucidophyllous forest. The transition zone is used mainly for organic agriculture, and Aya Town is the first community in the country to develop a traditional recycling-oriented agricultural system, put in place in 1988. Ecotourism, including 'forest therapy' (for healing purposes) and forest environmental education, is actively developed.



© Olga Koshkina

Korgalzhyn is Kazakhstan's first biosphere reserve. Situated in the northern/central part of the country, the site encompasses a network of freshwater and saline lakes embedded in the dry steppe zone of Eurasia. This makes it an important wetland site for migratory water birds (including globally threatened species, among them the extremely rare Siberian white crane, the Dalmatian pelican and Pallas' fish eagle). Korgalzhyn State Nature Reserve also forms part of the UNESCO World Heritage site 'Saryarka – Steppes and Lakes of Northern Kazakhstan'. The total area of the reserve covers 1,603,171 ha and is inhabited by about 12,500 people. Human emigration caused by overall environmental degradation (unsustainable use of water and biological resources, unsustainable tourism) is now being addressed through a variety of pilot projects, including sustainable pasture management, ecotourism, the creation of fishing and hunting farms, and the development of alternative power sources.

JAPAN



© Tehuacán-Cuicatlán Biosphere Reserve species (bosque de cactáceas columnares) and tropical dry forest (selva baja caducifolia).

Tehuacán-Cuicatlán is located in an arid mountain and highlands system and boasts one of Mexico's highest rates of biodiversity and endemic species. The area is emblematic of old landscapes of Mesoamerica and is host to eight different ethnic groups. It also includes the original domestication sites for maize, pumpkin, avocado and beans. The most relevant ecosystem is a densely wooded expanse of arborescent cactus species (bosque de cactáceas columnares) and tropical dry forest (selva baja caducifolia).

MEXICO



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can be considered as a model for integrated eco-tourism development in similar islands and may serve as the basis for a larger marine and terrestrial buffer zone.

SAO TOME AND PRÍNCIPE



© PASEF

and sustainable forestry will diversify sources of income for the population. Ferlo also hosts several research institutions.

SENEGAL

Ferlo occupies a total area of 1,150,000 ha. Despite threats to the ecosystem caused by drought and human activities, it is home to a remarkable variety of flora and fauna. In particular, Ferlo hosts emblematic species such as the redneck ostrich, the red-fronted gazelle and the endangered African blackwood (*Dalbergia melanoxylon*). Traditional activities include pastoralism and agriculture. Planned ecotourism, aquaculture



© La Gomera

La Gomera is part of the Canary archipelago, situated in a central location surrounded by the Tenerife, La Palma and El Hierro islands. The Garajonay National Park is located in the central part of the island. The maximum altitude of the reserve is 1,487 m (Alto de Garajonay), while the central plateau (1,000 m) and the formation of radial and deep ravines are the result of intense erosion. The landscape is also characterized by

agricultural terraces of cultural significance. The ensemble of these natural features results in a unique landscape. Humidity and cloud cover from the sea often hover over the plateau producing the impression of a sea of clouds. The park is also a UNESCO World Heritage site and has been noted for its laurisilva rainforest ecosystem.

SPAIN



© V.B. Martynenko

Bashkirski Ural is located in the western slopes of the southern Ural and covers a total surface area of 345,700 ha. It is rich in diversity with a variety of landscapes ranging from mountain river gorges to mountains steppes, meadows, floodplains and reservoirs. There are more than 1,650 plant species of which 44 are endemic and over 2,000 animal species. The site contains five different protected areas, including national parks and forestry districts. Unique ar-

chaeological sites are linked to the culture and history of the Bashkir people with

the preserved cave of 'Shulgan Tash' dating back to the Stone Age. The total resident

population is 14,957 with the main activities being forestry and small-scale farming,

traditional beekeeping and, increasingly, tourism (180,000 visitors during summer).



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Las Ubiñas-La Mesa Park is also surrounded by other biosphere reserves including Babia, Los Valles de Omaña y Luna, Alto Bernesga and Somiedo.

SPAIN



© Andrew Bielonski

Galloway and southern Ayrshire Biosphere represents the merging of two biosphere reserves, covering a total area of 520,000 ha. It consists of open field landscapes, lochs, moorlands, arable lands, pastures and afforested areas. The site has a very low human density with less than 100,000 inhabitants, and has suffered economically and socially from the closing of local mining and textile industries.

There are a few cities with no more

UNITED KINGDOM



© Jonkoping

East Vättern Scarp landscape is the country's second largest cold-water lake and the fifth largest lake in Europe with a total surface of 105,520 ha. Almost 40,000 people live in the area. Agriculture and forestry lands dominate most of the biosphere reserve, with villages and settlements consisting of small farms and individual homes. There area also includes several large-scale farms and manors, as well as three urban areas. The core areas consist of existing na-

SWEDEN

ture reserves, protected forest habitat and shorelines. Adaptation to climate change and mitigation is a key objective of this biosphere reserve with numerous research and activities already underway.

EXTENSION, RE-ZONING AND RENAMING OF BIOSPHERE RESERVES

Fray Jorge Biosphere Reserve. This extension incorporated the transition area that was not included during the nomination in 1977 and enlarges the buffer zone. The biosphere reserve thus more than doubled in size. The area represents the 'dwarf coastal cloud shrub-land habitat', which harbours succulents and thorny shrubs found in the arid and semi-arid Mediterranean-type plant formation of Mediterranean Chile. Biomes represented in the area include rivers, estuaries (the mouth of the Limary River), coastlines, semi-arid sclerophyll shrubland and evergreen relict forest. The extension surrounded the Bosque Fray Jorge National Park with a new zoning system permitting implementation of the Statutory Framework.

Réserve de biosphère des Iles et de la Mer d'Iroise. This extension, which now includes a marine park and the island of Sein, was based on engagement and support from local communities with a clear vision for sustainable development supported by a charter. The reserve, formerly known as Iroise, was renamed Mer d'Iroise. The total surface area of the reserve is now 99,149 ha, with 1,324 inhabitants.

Doñana Biosphere Reserve. This biosphere reserve was designated in 1980. The new extension incorporated the transition area, which was not included in the previous nomination and enlarged the buffer zone, tripling the total area of the reserve. This is one of the most important wetland areas and encompasses diverse landscape units. The coastal strip includes beaches and chain dunes, alternating with forests, centenary pine trees and complex lagoon systems interconnected by the water table. The core area and buffer zone have only light infrastructure dedicated to research, public use, institutional events and surveillance activities. The transition area has 190,000 inhabitants living in la Comarca municipality. Seasonal tourism increases the population to 500,000 in the summer months.

Sierra Nevada Biosphere Reserve. This biosphere reserve was nominated in 1986. The re-zoning incorporated the transition area not included in the previous nomination. The reserve now encompasses the inner mountain nucleus of the Cordillera Penibética range, which boasts the highest peaks on the Spanish peninsula including Mulhacen (3,482 m). These steep mountain slopes are a product of modelling by glacial erosion. In addition to the extraordinary landscapes numerous unique and endemic species of flora are found in the area of the Sierra Nevada.

CHILE

FRANCE

SPAIN

SPAIN

CHILE

FRANCE

SPAIN

SPAIN

IN 2013, the International Coordinating Council of MAB met in Paris (27–30 May) and added 12 sites to the World Network of Biosphere Reserves. These additions brought the total number of biosphere reserves to 621 in 117 countries. The United Kingdom asked for Loch Druidibeg on the Scottish island of South Uist to be withdrawn from the World Network of Biosphere Reserves, arguing that the site, designated as biosphere reserve in 1976, no longer met the criteria required to be part of the network. The reserves added in 2013 were as follows:



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Macizo de Cajas is situated in the south-west of the country. The biosphere reserve encompasses a large number of ecosystems ranging from high mountains to coastal and marine areas along the Pacific. It includes the Las Cajas National Park and the Quimsacocha National Recreational Area, which play an important role in water provision and regulation. Las Cajas National Park is also rich in biodiversity, especially endemic north-Andean

fauna, and is recognized as a Ramsar site for its important to bird conservation. The World Heritage City of Cuenca also forms part of the reserve.



© UNESCO/Mariñas Betanzos

Mariñas Coruñesas e Terras do Mandeo is located in the littoral Cantabric-Atlantic region. It covers an area of 116,724 ha and has about 190,000 inhabitants. It encompasses two main river watersheds, Mero and Mandeo, and contains ecosystems from coastal zones to mountain regions with a high level of biodiversity. The area also boasts significant cultural diversity, linked to the use of natural resources (e.g. fertilizer and honey production) and the conservation of local livestock breeds.

CHINA

ECUADOR

SPAIN



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environments. While tourism is the driving economic force in Mont-Viso, the area also sustains well-developed agriculture and forestry.

Real Sitio de San Ildefonso-El Espinar is located in the province of Segovia, 50 km from Madrid. This site covers 35,414 ha and has a population of almost 14,000. The mountain of Valsain is an important national woodland area and holds significant ecological, economic, aesthetic and social value. Economic activities include glass production, tourism and small-scale farming. The site includes several research centres dedicated to forestry research and monitoring.

SPAIN



© UNESCO/Carl Peteroff

by a system of wateringues (water management units or small canals) crucial for the prevention and management of floods. The reserve has a permanent population of 69,000 residents and is highly valued as a destination for leisure and tourism.

SPAIN



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a wide variety of biological resources from their environment such as medicinal plants and other non-timber forest products.

FRANCE



© UNESCO/Renzo Ribetto

266,000 permanent residents whose traditional economic activities include agriculture and the manufacture of wooden objects such as toys, furniture and harps.

FRANCE

The Marais Audomarois covers some 22,300 ha and is located in the north of the country. It includes the cultural and historic city of Saint Omer and its wetland, a Ramsar site. More than 1,700 species of flora, birds and fungi inhabit the reserve. Together they account for more than one-third of France's aquatic diversity. The reserve also has one of France's two remaining wetland floating gardens, which are characterized

INDIA

Great Nicobar is an island biosphere reserve covering 103,870 ha, and is characterized by tropical wet evergreen forest. The reserve is home to 1,800 animal species, including 200 species of meiotauna in the coastal zone. The island is also home to the indigenous Shompen people, semi-nomadic hunters who live inland, and the Nicobarese, coastal dwellers dependent on fishing and horticulture. The 6,381 inhabitants derive

ITALY

Monteviso Area della Biosfera del Monviso is situated in the northern Alpine part of Italy near the French border. It encompasses a mosaic of ecosystems that run along a steep altitude gradient climbing from 450 m to 3,841 m above sea level. The site covers 293,916 ha and encompasses the Monviso Mountain, the Alevè Forest – consisting mainly of Arolla Pine (*Pinus cembra*) – and the Po River basin. It is home to over



© UNESCO/Alexander Filimonov

Alakol ocupa una superficie de 193.089 hectáreas, incluyendo humedales de importancia mundial. Es un importante corredor de migración de aves de la India, que sirve de hábitat a numerosas especies de aves acuáticas, algunas de ellas raras y amenazadas, como el pelícano ceñudo (*Pelicanus crispus*) o la espátula común (*Platalea leucorodia*). La reserva alberga 678 especies

vegetales, seis de ellas endémicas. La economía regional reposa básicamente en la agricultura, la cultura y la ganadería.



© Ziarat Juniper Forest

Ziarat Juniper Forest is home to the largest area of juniper forest (*juniperus excelsa polycarpus*) in Pakistan, covering about 110,000 ha. It is believed that the forest is the second largest of its kind in the world. The juniper tree species found there are of global significance because of their advanced age and slow growth rate. In fact, the junipers of Ziarat are among the oldest living trees in the world. The juniper forest ecosystem of Ziarat provides a habitat for endangered wildlife species and supports a rich diversity of plant species. Because of its rich biodiversity the different areas of the ecosystem have been assigned the status of protected areas, including wildlife sanctuaries and game reserves. There are over 100,000 people living within or in close proximity to the biosphere reserve, most of whom are agro-pastoralists by profession.



© UNESCO/Lee Kang soo

Gochang covers 670 km² and is located in the south-west region of the country. The reserve consists of forest, coastal and freshwater ecosystems. The tidal flats are major stopover sites for migratory birds, especially longbill and plover. Economic activities on the site include eco-tourism, organic farming and salt production.

KAZAKHSTAN

EXTENSION

SPAIN

Ordesa-Vinamala First designated in 1977, this was one of the first Spanish biosphere reserves. It is located in the central Pyrenees and encompasses the Ordesa and Mont Perdido National Park, the Pyrenees glaciers and the World Heritage site of Pirineos-Mont Perdido, Circos y Canones. The extension concerned the valley and urban zones surrounding the core zone protected areas. The biosphere reserve now covers 117,364 ha and is home to 6,000 inhabitants.

PAKISTAN

REPUBLIC OF KOREA

MAP OF THE WORLD NETWORK OF BIOSPHERE RESERVES



WORLD NETWORK OF BIOSPHERE RESERVES 2012 – 2013

ARE – United Arab Emirates Marawah, 2007	BGR – Bulgaria Alibotouch, 1977 Bistrichko Branichté, 1977 Boitine, 1977 Djendema, 1977 Doupkata, 1977 Doupki-Djindjiritza, 1977 Kamtchia, 1977 Koupena, 1977 Mantaritsa, 1977 Ouzounboudjak, 1977 Parangalitza, 1977 Srébarna, 1977 Steneto, 1977 Tchervenata Sténa, 1977 Tchoupréne, 1977 Tsaritchina, 1977	South West Nova, 2001 Thousand Islands - Frontenac Arch, 2002 Georgian Bay Littoral, 2004 Fundy, 2007 Manicouagan Uapishka, 2007 Bras d'Or Lake, 2011	Xingkai Lake, 2007 Mao'er Mountain, 2011 Jinggangshan, 2012 Niubeiliang, 2012 Snake Island - Laotie Mountain, 2013	DEU – Germany Flusslandschaft Elbe, 1979 Vessertal-Thüringer Wald, 1979 Berchtesgadener Land, 1990 Schleswig-Holstenisches Wattenmeer, Halligen, 1990 Schorfheide-Chorin, 1990 Rhön, 1991 Spreewald, 1991 Südost-Rügen, 1991	La Palma, 1983 Las Sierras de Cazorla y Segura, 1983 Marismas del Odiel, 1983 Urdaibai, 1984 Sierra Nevada, 1986 Cuenca Alta del Río Manzanares, 1992 Lanzarote, 1993 Menorca, 1993 Sierra de las Nieves y su Entorno, 1995 Cabo de Gata-Níjar, 1997 Isla de Hierro, 2000 Bardenas Reales, 2000 Muniellos, Gran Cantábrica, 2000 Somiedo, 2000 Redes, 2001 Las Dehesas de Sierra Morena, 2002 Terras do Miño, 2002 Valle de Laciana, Gran Cantábrica, 2003 Monfragüe, 2003 Picos de Europa, Gran Cantábrica, 2003 Valle de Jubera, Leza, Cidacos y Alhama, 2003 Babia, Gran Cantábrica, 2004 Alto de Bernesga, Gran Cantábrica, 2005 Área de Allariz, 2005 Gran Canaria, 2005 Los Argüellos, Gran Cantábrica, 2005 Los Valles de Omaña y Luna, 2005 Sierra del Rincón, 2005 Las Sierras de Béjar y Francia, 2006 Los Ancares Leoneses, Gran Cantábrica, 2006 Los Ancares Lucenses y Montes de Cervantes, Navia y Becerrea, Gran Cantábrica, 2006 Reserva de la Biosfera intercontinental del Mediterraneo, 2006; Morocco Rio Eo, Oscos y Terras de Buron, 2007 Fuerteventura, 2009 Gerês, 2009; Portugal La Gomera, 2012 Las Ubinas - La Mesa, 2012 Marinas Corunesas e Terras do Mandeo, 2013 Terres de l'Ebre, 2013 Real Sitio de San Ildefonso – El Espinar, 2013
ARG – Argentina San Guillermo, 1980 Laguna Blanca, 1982 Costero del Sur, 1984 Nacuñán, 1986 Laguna de Pozuelos, 1990 Yabotí, 1995 Mar Chiquita, 1996 Delta de Paraná, 2000 Laguna Oca del Río Paraguay, 2001 Riacho Teuquito, 2001 Las Yungas, 2002 Andino Norpatagónica, 2007 Pereyra Iraola, 2007	CHE – Switzerland Val Müstair - Parc Naziunal, 1979 Entlebuch, 2001	Taï, 1977 Comoé, 1983	CIV – Republic of Côte d'Ivoire		
AUS – Australia Croajingolong, 1977 Kosciuszko, 1977 Prince Regent River, 1977 Riverland, 1977 Uluru, Ayers Rock-Mount Olga, 1977 Unnamed, 1977 Yathong, 1977 Fitzgerald River, 1978 Hattah-Kulkyne & Murray-Kulkyne, 1981 Wilson's Promontory, 1981 Mornington Peninsula and Western Port, 2002 Barkindji, 2005 Noosa, 2007 Great Sandy, 2009	CHL – Chile Fray Jorge, 1977 Juan Fernández, 1977 Torres del Paine, 1978 Laguna San Rafael, 1979 Lauca, 1981 Araucarias, 1983 La Campana-Peñuelas, 1984 Cabo de Hornos, 2005 Bosques Templados Lluviosos de Los Andes Australes, 2007 Corredor Biológico Nevados de Chillán - Laguna de Laja, 2011	Waza, 1979 Benoué, 1981 Dja, 1981	CMR – Cameroon Luki, 1976 Yangambi, 1976 Lufira, 1982	COD – Democratic Republic of the Congo Odzala, 1977 Dimonika, 1988	DNK – Denmark North-East Greenland, 1977
BOL – Plurinational State of Bolivia Pilón - Lajas, 1977 Ulla Ulla, 1977 Beni, 1986	CHN – China Changbaishan, 1979 Dinghushan, 1979 Wolong, 1979 Fanjingshan, 1986 Wuyishan, 1987 Xilin Gol, 1987 Bogeda, 1990 Shennongjia, 1990 Yancheng, 1992 Xishuangbanna, 1993 Maolan, 1996 Tianmushan, 1996 Fenglin, 1997 Jiuzhaigou Valley, 1997 Nanji Islands, 1998 Baishuijiang, 2000 Gaoligong Mountain, 2000 Huanglong, 2000 Shankou Mangrove, 2000 Baotianman, 2001 Saihan Wula, 2001 Dalai Lake, 2002 Wudalianchi, 2003 Yading, 2003 Foping, 2004 Qomolangma, 2004 Chebaling, 2007	El Tuparro, 1979 Sierra Nevada de Santa Marta, 1979 Ciénaga Grande de Santa Marta, 2000 Seaflower, 2000	COL – Colombia Cinturon Andino, 1979 El Tuparro, 1979 Sierra Nevada de Santa Marta, 1979 Ciénaga Grande de Santa Marta, 2000 Seaflower, 2000	DZA – Algeria Tassili N'Ajjer, 1986 El Kala, 1990 Djurdjura, 1997 Chrea, 2002 Gouraya, 2004 Taza, 2004	DOM – Dominican Republic Jaragua-Bahoruco-Enriquillo, 2002
BRA – Brazil Mata Atlântica & São Paulo City Green Belt, 1993 Cerrado, 1994 Pantanal, 2000 Caatinga, 2001 Central Amazon, 2001 Espinhaço Range, 2005	CFA – Central African Republic Basse-Lobaye, 1977 Bamingui-Bangoran, 1979	La Amistad, 1982 Cordillera Volcánica Central, 1988 Agua y Paz, 2007	CRI – Costa Rica Cordillera Volcánica Central, 1988 Agua y Paz, 2007	ECU – Ecuador Archipiélago de Colón, Galápagos, 1984 Yasuní, 1989 Sumaco, 2000 Podocarpus - El Cóndor, 2007 Macizo del Cajas, 2013	DNK – Denmark North-East Greenland, 1977
AUT – Austria Gossenköllesee, 1977 Gurgler Kamm, 1977 Lobau, 1977 Neusiedler See, 1977 Großes Walsertal, 2000 Wienerwald, 2005 Salzburger Lungau und Kärntner Nockberge, 2012	CAN – Canada Mont Saint Hilaire, 1978 Waterton, 1979 Long Point, 1986 Riding Mountain, 1986 Charlevoix, 1988 Niagara Escarpment, 1990 Clayoquot Sound, 2000 Lac Saint-Pierre, 2000 Mount Arrowsmith, 2000 Redberry Lake, 2000	CUB – Cuba Sierra del Rosario, 1984 Baconao, 1987 Cuchillas de Toa, 1987 Península de Guanahacabibes, 1987 Buenavista, 2000 Ciénaga de Zapata, 2000	CZE – Czech Republic Krivoklátsko, 1977 Trebon Basin, 1977 Lower Morava, 1986 Sumava, 1990 Krkonose/Karkonosze, 1992; Poland	Egypt Omayed, 1981 Wadi Allaqui, 1993	DOM – Dominican Republic Jaragua-Bahoruco-Enriquillo, 2002
BEN – Benin Pendjari, 1986 W Region, 2002; Burkina Faso, Niger	FRA – France Mare aux hippopotames, 1986 W Region, 2002; Benin, Niger	ESP – Spain Grazalema, 1977 Ordesa-Viñamala, 1977 Montseny, 1978 Doñana, 1980 La Mancha Húmeda, 1980	EST – Estonia West-Estonian Archipelago, 1990		

ETH – Ethiopia Kafa, 2010 Yayu, 2010 Sheka, 2012	GRC – Greece Gorge of Samaria, 1981 Mount Olympus, 1981	IRN – Islamic Republic of Iran Arasbaran, 1976 Arjan, 1976 Geno, 1976 Golestan, 1976 Hara, 1976 Kavir, 1976 Lake Oromeeh, 1976 Miankaleh, 1976 Touran, 1976 Dena, 2010	KHM – Cambodia Tonle Sap, 1997	Alto Golfo de California, 1993 El Triunfo, 1993 El Vizcaíno, 1993 Islas de Golgo de California, 1995 Sierra Gorda, 2001 Banco Chinchorro, 2003 Ría Celestún, 2003 Sierra La Laguna, 2003 Ría Lagartos, 2004 Barranca de Metztilán, 2006 Chamela-Cuixmala, 2006 Cuatro Ciénegas, 2006 Cumbres de Monterrey, 2006 Huatulco, 2006 La Encrucijada, 2006 Laguna Madre y Delta de Río Bravo, 2006 La Primavera, 2006 La Sepultura, 2006 Los Tuxtlas, 2006 Maderas del Carmen, Coahuila, 2006 Mariposa Monarca, 2006 Pantanos de Centla, 2006 Arrecife Alacranes, 2006 Sistema Arrecifal Veracruzano, 2006 Selva El Ocote, 2006 Sierra de Huautla, 2006 Volcan Tacaná, 2006 Sierra de Alamos - Rio Cuchujaqui, 2007 Isla Marietas, 2008 Lagunas de Montebello, 2009 Isla Marías, 2010 Los Volcanes, 2010 Nahá-Metzabok, 2011 Tehuacán-Cuicatlán, 2012
FIN – Finland North Karelian, 1992 Achipelago Sea Area, 1994	GTM – Guatemala Maya, 1990 Sierra de Las Minas, 1992 Trifinio Fraternidad, 2011; <i>El Salvador, Honduras</i>	HND – Honduras Río Plátano, 1980 Trifinio Fraternidad, 2011; <i>El Salvador, Guatemala</i>	KNA – Saint Kitts and Nevis St. Mary's, 2011	MUS – Mauritius Macchabee / Bel Ombre, 1977
FRA – France Camargue, Rhône-Delta, 1977 Commune de Fakarava, 1977 Vallée du Fango, 1977 Cévennes, 1984 Îles et Mer d'Iroise, 1988 Vosges du Nord / Pfälzerwald, 1988; Germany, 1998 Mont Ventoux, 1990 Archipel de la Guadeloupe, 1992 Luberon-Lure, 1997 Fontainebleau et du Gâtinais, 1998 Bassin de la Dordogne, 2012 Marais Audomarois, 2013 Mont-Viso, 2013; <i>Italy</i>	HRV – Croatia Velebit Mountain, 1977 Mura Drava Danube, 2012; <i>Hungary</i>	ISR – Israel Mount Carmel, 1996 Ramat Menashe, 2011	KOR – Republic of Korea Mount Sorak, 1982 Jeju Island, 2002 Shinan Dadohae, 2009 Gwangneung Forest, 2010 Gochang, 2013	MWI – Malawi Mount Mulanje, 2000 Lake Chilwa Wetland, 2006
FSM – Micronesia, Federated States of Utwe, 2005 And Atoll, 2007	HTI – Republic of Haiti La Selle, 2012	ITA – Italy Circeo, 1977 Collemeluccio-Montedimezzo, 1977 Miramare, 1979 Cilento and Valle di Diano, 1997 Somma-Vesuvio and Miglio d'Oro, 1997 Valle del Ticino, 2002 Tuscan Islands, 2003 Selva Pisana, 2004 Area della Biosfera del Monviso, 2013; <i>France</i>	LBN – Lebanon Shouf, 2005 Jabal Al Rihane, 2007 Jabal Moussa, 2009	MYS – Malaysia Tasik Chini, 2009
GAB – Gabon Ipassa-Makokou, 1983	IDN – Indonesia Cibodas, 1977 Komodo, 1977 Lore Lindu, 1977 Tanjung Puting, 1977 Gunung Leuser, 1981 Siberut, 1981 Giam Siak Kecil - Bukit Batu, 2009 Wakatobi, 2012	JPN – Japan Mount Hakusan, 1980 Mount Odaigahara & Mount Omine, 1980 Shiga Highland, 1980 Yakushima Isalnd, 1980 Aya, 2012	LKA – Sri Lanka Hurulu, 1977 Sinharaja, 1978 Kanneliya-Dediyagala-Nakiyadeniya, 2004 Bundala, 2005	NER – Niger W Region, 1996; <i>Benin, Burkina Faso, 2002</i>
GBR – United Kingdom of Great Britain and Northern Ireland Beinn Eighe, 1976 Braunton Burrows - North Devon, 1976 Biosffer Dyfi, 1976 North Norfolk Coast, 1976 Galloway and Southern Ayrshire, 2012	HUN – Hungary Aggtelek, 1979 Hortobágy, 1979 Kiskunság, 1979 Lake Fertő, 1979 Pilis, 1980 Mura Drava Danube, 2012; <i>Croatia</i>	JOR – Jordan Dana, 1998 Mujib, 2011	LTU – Lithuania Zuvintas, 2011	NGA – Nigeria Omo, 1977
GHA – Ghana Bia, 1983 Songor, 2011	IDN – Indonesia Cibodas, 1977 Komodo, 1977 Lore Lindu, 1977 Tanjung Puting, 1977 Gunung Leuser, 1981 Siberut, 1981 Giam Siak Kecil - Bukit Batu, 2009 Wakatobi, 2012	KAZ – Kazakhstan Korgalzhyn, 2012 Alakol, 2013	MAR – Morocco Arganeraie, 1998 Oasis du sud marocain, 2000 Réserve de Biosphère intercontinentale de la Méditerranée, 2006; <i>Spain</i>	NIC – Nicaragua Bosawas, 1997 Río San Juan, 2003 Ometepe Island, 2010
GIN – Guinea Massif du Ziamá, 1980 Monts Nimba, 1980 Badiar, 2002 Haut Niger, 2002	IND – India Nilgiri, 2000 Gulf of Mannar, 2001 Sunderban, 2001 Nanda Devi, 2004 Nokrek, 2009 Pachmarhi, 2009 Simlipal, 2009 Achanakmar-Amarkantak, 2012 Great Nicobar, 2013	KEN – Kenya Mount Kenya, 1978 Mount Kulal, 1978 Malindi-Watamu, 1979 Kiunga, 1980 Amboseli, 1991 Mount Elgon, 2003	MDG – Madagascar Mananara Nord, 1990 Sahamalaza-Îles Radama, 2001 Littoral de Toliara, 2003	NLD – Netherlands Wadden Sea Area, 1986
GNB – Guinea-Bissau Boloma Bijagós, 1996	IRL – Ireland North Bull Island, 1981 Killarney, 1982	KGZ – Kyrgyzstan Sary-Chelek, 1978 Issyk Kul, 2001	MDV – Republic of Maldives Baa Atoll, 2011	PAK – Pakistan Lal Suhanra, 1977 Ziarat Juniper Forest, 2013
			MEX – Mexico Mapimí, 1977 La Michilía, 1977 Montes Azules, 1979 El Cielo, 1986 Sian Ka'an, 1986 Sierra de Manantlán, 1988 Région de Calakmul, 1993	PAN – Panama Darién, 1983 La Amistad, 2000
			MNG – Mongolia Great Gobi, 1990 Boghd Khan Uul, 1996 Uvs Nuur Basin, 1997 Hustai Nuruu, 2002 Dornod Mongol, 2005 Mongol Daguur, 2007	PER – Peru Huascarán, 1977 Manu, 1977 Noroeste, 1977 Oxapampa-Ashaninka-Yanesha, 2010
			MRT – Mauritania Delta du Fleuve Sénégal, 2005; <i>Senegal</i>	PHL – Philippines Palawan, 1977 Puerto Galera, 1977
				PLW – Palau Ngaremeduu, 2005
				POL – Poland Babia Gora, 1976 Bialowieza, 1976 Lukajno Lake, 1976 Slowinski, 1976 Krkonose / Karkonosze, 1992; <i>Czech Republic</i>

Tatra, 1992; Slovakia
East Carpathians, 1998;
Slovakia, Ukraine
Puszczna Kampinoska, 2000
West Polesie, 2002;
Ukraine, Belarus, 2012
Tuchola Forest, 2010

PRK – Democratic People's Republic of Korea
Mt. Paekdu, 1989
Mount Kuwol, 2004
Mount Myohyang, 2009

PRT – Portugal
Pául do Boquillobo, 1981
Corvo Island, 2007
Graciosa Island, 2007
Flores Island, 2009
Xurés, 2009; Spain
Berlengas, 2011
Santana Madeira, 2011

PRY – Paraguay
Bosque Mbaracayú, 2000
El Chaco, 2005

QAT – Qatar
Al-Reem, 2007

ROU – Romania
Pietrosul Mare, 1979
Retezat, 1979
Danube Delta, 1992; Ukraine, 1998

RUS – Russian Federation
Kavkazskiy, 1978
Okskiy, 1978
Prioksko-Terrasnyi, 1978
Sikhote-Alin, 1978
Tsentralkochernozem, 1978
Astrakhanskiy, 1984
Kronotskiy, 1984
Laplandskiy, 1984
Pechoro-Ilychskiy, 1984
Sayano-Shushenskiy, 1984
Sokhondinskiy, 1984
Voronezhskiy, 1984
Tsentralkolesnoy, 1985
Baikalskiy, 1986
Barguzinskyi, 1986
Tsentralsibirskiy, 1986

Chernye Zemli, 1993
Taimyrsky, 1995
Daursky, 1997
Teberda, 1997
Ubsunorskaya Kotlovina, 1997
Katunskiy, 2000
Nerusso-Desnianskoe-Polesie, 2001
Visimskiy, 2001
Vodlozersky, 2001
Darvinskiy, 2002
Commander Islands, 2002
Nijegorodskoe Zavolje, 2002
Smolensk Lakeland, 2002
Ugra, 2002
Far East Marine, 2003
Kedrovaya Pad, 2004
Kenozersky, 2004
Valdaiskiy, 2004
Khankaiskiy, 2005
Middle Volga
Integrated Biosphere, 2006
Great Volzhsko-Kamsky, 2007
Rostovsky, 2008
Altaiskiy, 2009
Wolga-Akhtuba Floodplain, 2011
Bashkirskiy Ural, 2012

RWA – Rwanda
Volcans, 1983

SDN – Sudan
Dinder, 1979
Radom, 1979

SEN – Senegal
Samba Dia, 1979
Delta du Saloum, 1980
Niokolo-Koba, 1981
Delta du Fleuve Sénégala, 2005;

Mauritania
Ferlo, 2012

SLV – El Salvador
Apaneca - Llamatepec, 2007
Xiruaultique - Jiquitzco, 2007
Trifinio Fraternidad, 2011;
Guatemala, Honduras

SRB – Serbia
Golija-Studenica, 2001

STP – Democratic Republic of São Tomé and Príncipe
The Island of Príncipe, 2012

SVK – Slovakia
Slovenský Kras, 1977
Polana, 1990
Tatra, 1992; TBD Polonia
East Carpathians, 1998; Poland, Ukraine

SVN – Slovenia
Julian Alps, 2003
The Karst, 2004
Kozjansko and Obsotelje, 2010

SWE – Sweden
Kristianstad Vattenrike, 2005
Lake Vänern Archipelago, 2010
Blekinge Archipelago, 2011
Nedre Dalälven River Landscape, 2011
East Vättern Scarp Landscape, 2012

SYR – Syria
Lajat, 2009

TGO – Togo
Complexe Oti-Keran /
Oti-Mandouri, 2011

THA – Thailand
Sakaerat, 1976
Hauy Tak Teak, 1977
Mae Sa-Kog Ma, 1977
Ranong, 1997

TKM – Turkmenistan
Repetek, 1978

TUN – Tunisia
Djebel Bou-Hedma, 1977
Djebel Chambi, 1977
Ichkeul, 1977
Îles Zembra et Zembretta, 1977

TUR – Turkey
Camilii, 2005

TZA – United Republic of Tanzania
Lake Manyara, 1981
Serengeti-Ngorongoro, 1981
East Usambara, 2000

UGA – Uganda
Queen Elizabeth, 1979
Mount Elgon, 2005

UKR – Ukraine
Chernomorskiy, 1985
Askaniya-Nova, 1985
Carpathian, 1992
Danube Delta, 1998; Romania
East Carpathians, 1998;
Poland, Slovakia

West Polesie, 2002;
Poland, Belarus, 2012

Desnianskiy, 2009

Roztochya, 2011

URY – Uruguay
Bañados del Este, 1976

USA – United States
Aleutian Islands, 1976
Beaver Creek, 1976
Big Bend, 1976
Cascade Head, 1976
Central Plains, 1976
Channel Islands, 1976
Coram, 1976
Denali, 1976
Desert, 1976
Everglades, 1976
Fraser, 1976
Glacier, 1976
H.J. Andrews, 1976
Hubbard Brook, 1976
Jornada, 1976
Luquillo, 1976
Noatak, 1976
Olympic, 1976
Organ Pipe Cactus, 1976
Rocky Mountain, 1976
San Dimas, 1976
San Joaquin, 1976
Sequoia-Kings Canyon, 1976
Stanislaus-Tuolumne, 1976
Three Sisters, 1976
Virgin Islands, 1976
Yellowstone, 1976

Konza Prairie, 1978
University of Michigan
Biological Station, 1979
Niwot Ridge, 1979
Virginia Coast, 1979

Hawaiian Islands, 1980
Isle Royale, 1980
Big Thicket, 1981
Guanica, 1981
California Coast Ranges, 1983
Central Gulf Coast Plain, 1983
South Atlantic Coastal Plain, 1983
Mojave and Colorado Deserts, 1984
Carolinian-South Atlantic, 1986
Glacier Bay-Admiralty Islands, 1986
Golden Gate, 1986
New Jersey Pinelands, 1988
Southern Appalachian, 1988
Champlain-Adirondak, 1989
Mammoth Cave Area, 1990
Land Between the Lakes Area, 1991

UZB – Uzbekistan
Mount Chatkal, 1978

VEN – Bolivarian Republic of Venezuela
Alto Orinoco-Casiquiare, 1993
Delta Orinoco, 2009

VNM – Viet Nam
Can Gio Mangrove, 2000
Cat Tien, 2001
Cat Ba, 2004
Red River Delta, 2004
Kien Giang, 2006
Western Nghe An, 2007
Cu Lao Cham - Hoi An, 2009
Mui Ca Mau, 2009

YEM – Yemen
Socotra Archipelago, 2003
Bura'a, 2011

ZAF – South Africa
Kogelberg, 1998
Cape West Coast, 2000
Kruger To Canyons, 2001
Waterberg, 2001
Cape Winelands, 2007
Vhembe, 2009

ZWE – Zimbabwe
Middle Zambezi, 2010

TRANSBOUNDARY BIOSPHERE RESERVES

Poland, Slovakia
Tatra, 1992

Poland, Czech Republic
Krkonoše / Karkonosze, 1992

Germany, France
Vosges du Nord / Pfälzerwald, 1998

Poland, Slovakia, Ukraine
East Carpathians, 1998

Romania, Ukraine
Danube Delta, 1998

Benin, Burkina Faso, Niger
W Region, 2002

Mauritania, Senegal
Delta du Fleuve Sénégal, 2005

Morocco, Spain
Réserve de Biosphère
Intercontinentale de la
Méditerranée, 2006

Portugal, Spain
Gerês / Xurés, 2009

El Salvador, Guatemala, Honduras
Trifinio Fraternidad, 2011

Poland, Ukraine, Belarus
West Polesie, 2012

Croatia, Hungary
Mura Drava Danube, 2012

France, Italy
Mont-Viso / Area della Biosfera Del
Monviso, 2013

Testing grounds for sustainable development: Kafa biosphere reserve. Kafa is located in the Kafa Zone of Ethiopia, approximately 460 km southwest of Addis Abbaba. It became a biosphere reserve in 2010. Kafa is renowned as the birthplace of wild *Coffea arabica*, which first grew 1,000 years ago in the forest undergrowth of the region. There are now close to 5,000 wild varieties of coffee in this biodiversity hotspot, and a unique coffee culture is deeply entwined with Ethiopian history and the economy. This culture is a key element of the participatory forest management scheme created in the Kafa Biosphere Reserve, which works to avoid deforestation and boost economic development.

Forty years ago, forest covered 40% of Ethiopian land. Today, less than 3% of this forest remains. The majority is found in the Kafa coffee biosphere reserve, which includes large areas of mountainous afromontane cloud forest. The forest ecosystem makes an important contribution to the livelihoods of people in the area. It provides wild coffee, valuable spices and honey from wild bees. It also contains some 25 million tonnes of carbon in above-ground biomass. Some 600,000 tonnes of carbon could be removed from the atmosphere annually through natural forest growth – if the forest remains intact. However, clear-cutting for smallholder agriculture and industrial coffee and tea plantations pose a real threat to this resource.

Two projects seek to address the issue through participatory forest management and public/private partnerships in cooperation with the Ethiopian Government. Under the Participatory Forest Management scheme, local farmers are entitled to collect and market wild coffee cherries on the condition that they conserve the forest where they grow. Today, the local community manages 12,000 ha of forest and 27 cooperatives have joined the Kafa Coffee Farmers Union. Wild coffee is the principal source of income for these farmers and their families, which amount to 50,000 people.

Another project was developed with local communities to address the need for fuel and to allow for reforestation. Fast-growing trees are planted close to villages to ensure a constant supply of wood, while 10,000 efficient wood-burning stoves are introduced to lower wood consumption. Native tree species are being replanted in other areas to mitigate deforestation.

These projects address long-term economic, social and environmental concerns. New jobs and sources of income are being created, and the conservation of the forest is contributing to carbon sequestration and climate change mitigation. Wild coffee beans from the Kafa biosphere reserve have gained recognition among international markets as a high-quality product. Today, local communities feel responsible for their forest and place a high value on its conservation. In addition, an ecotourism plan is underway.

Partners in these projects include the Ethiopian Government in cooperation with the Nature and Biodiversity Conservation Union (NABU), the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), Geo Rainforest Conservation and GIZ.

Green Economy in Biosphere Reserves (GEBR): a means for poverty reduction, biodiversity conservation and sustainable development in sub-Saharan Africa. By diversifying local economies in and around biosphere reserves this project aims to contribute to the conservation of biodiversity, poverty reduction and sustainable development in sub-Saharan Africa. In November 2013, implementation of the project's activities began in three biosphere reserves: Bia Biosphere Reserve, Ghana; Omo Biosphere Reserve, Nigeria; and East Usambara Biosphere Reserve, the Republic of Tanzania. Funding has been provided by the Korea International Cooperation Agency (KOICA).

The project has employed a collaborative and consultative approach with stakeholders and direct project beneficiaries from local communities in and around the biosphere reserves. This approach has resulted in the design of selected livelihood activities. The project beneficiaries will then be trained and provided with the necessary tools or equipment to undertake these activities. The overall aim is to reduce over-dependency or excessive exploitation of the natural resources in the biosphere reserves.

The Government of St. Kitts & Nevis and MAB organize an Inter-Ministerial and Experts Conference on Biosphere Reserves in the Caribbean Sub-Region. The Government of St. Kitts & Nevis and the MAB Programme jointly organized an Inter-Ministerial and Experts Conference on Biosphere Reserves in the Caribbean Sub-Region, under the theme 'Tools for Sustainable Development and Growth'. The meeting took place in St. Kitts & Nevis (26–27 March 2013). The objective of this event was to facilitate discussions on the identification of appropriate locations for new biosphere reserves as well as their integration with the local/national sustainable development and adaptation to climate change plans.

At the end of the meeting the participants committed to establish a biosphere reserve in their respective countries. They also established an action plan for the following three years that includes the creation of a network of biosphere reserves in the Caribbean Small Islands States and the promotion of biosphere reserves as tools for innovative projects, bringing added value to local socio-economic activities.

The ministers, UNESCO representatives and experts present unanimously accepted the St. Kitts & Nevis Declaration. This decision also empowers UNESCO to identify and secure extra-budgetary funds to support the Caribbean island states in implementing the action plan.



Inter-Ministerial and Experts Conference on Biosphere Reserves, St. Kitts & Nevis.
© Miguel Glüsener-Godt

End of the Sustainable Management of Marginal Drylands (SUMAMAD) project. The Sustainable Management of Marginal Drylands (SUMAMAD) project started with a first phase in 2002, which aimed to combat desertification at pilot sites in nine countries: Bolivia, Burkina Faso, China, Egypt, India, Iran, Jordan, Pakistan and Tunisia. It was implemented by the MAB programme, in collaboration with the Institute for Water, Environment and Health of the United Nations University and with funding from the Flemish Government of Belgium and the participating countries. Through the project, scientists from Africa, Asia and Latin America were able to share information and their experiences of working in drylands.

The second phase began in 2009 and consisted of collaboration between research teams and local communities to rehabilitate degraded drylands and improve agricultural yields through better water management. The team also produced policy guidelines for decision-makers in the form of scenarios for future land-use changes in the context of economic valuation of dryland services at each site.



Dryland agriculture in the Mare aux Hippopotames Biosphere Reserve, Burkina Faso. Organic chicken farm in Xilin Gol Biosphere Reserve, China. Omayed Biosphere Reserve, Egypt. © Thomas Schaaf

Through this project, local communities received support and encouragement to adopt more sustainable livelihoods, such as ecotourism, handicraft production, herbal medicine, bee-keeping and dietary diversification, with a view to reducing their dependence on traditional dryland agriculture in a deteriorating environment.

The Mare aux Hippopotames Biosphere Reserve in Burkina Faso has seen a decrease in rainfall over recent decades, however local farmers grow cotton, a thirsty crop. The project established ecological orchards composed mainly of mango and citrus trees to demonstrate the virtue of replacing cotton and thus restoring the soil. Researchers have also developed guidelines for improving the sustainability of fishing activity. Many local inhabitants have joined one of the multidisciplinary Forest Management Groups established by the project, which has also introduced environmental education to the local Bala School, through the use of theatre.

Located on a plateau 200 km north of Beijing, the Hunshandake Sandland Biosphere Reserve covers 53,000 km² of one of the windiest, sandiest parts of China. The population of the reserve numbers 128,000 and obtains 92% of its income from livestock. However, the multiplication of goats and sheep has seriously degraded the grasslands. The project team has helped local communities to raise free-roaming chickens using eco-husbandry, as an alternative to traditional livestock methods.

Standard chicken feed contains a mix of hormones, trace elements and animal proteins, which fatten a chick to a weight of up to 5 kg in 45 days. However, urban consumers in China are beginning to reject such rapid-growth chickens in favour of organic food, even if it comes with a higher price tag. Convinced by the research conducted by the project team, the local government has agreed to provide chicken pens to help families convert to organic chicken farming.

The other project sites were located in the Bolivian Andes; the Omaya Biosphere Reserve, Egypt; the Dana Biosphere Reserve, Jordan; the Thar Desert, India; the Gareh Bygone Plain, Iran; the Dingarh/Lal Sohanra Biosphere Reserve, Pakistan; and the Zeuss-Coutine Watershed, Tunisia.

The Sustainable Management of Marginal Drylands project wrapped up in Ghent, Belgium (19 June 2013) at the project's 11th annual meeting.

Great Apes Survival Partnership (GRASP) Council meeting. The Great Apes Survival Partnership (GRASP) was launched in 2001 as the Great Apes Survival Project, under the auspices of UNEP. Its objective was to avert the danger of great apes extinction by safeguarding viable populations and their habitats. Gorillas, chimpanzees, bonobos and orang-utans in equatorial Africa and south-east Asia face growing threats posed by bushmeat hunters and primate traders, war, encroachment on forest ecosystems, climate change and diseases such as the Ebola virus. This has led to a steep drop in the number of primates and the fragmentation of their habitat, leaving populations scattered in small and increasingly vulnerable groups.

The GRASP Council is now coordinated by the United Nations Environmental Programme (UNEP) and UNESCO. The Council held its second meeting at UNESCO Headquarters in Paris (6–8 November 2012) to define a new strategy to protect these endangered primates, whose numbers have continued to decline. Over 150 participants gathered for the meeting, including partners from range States, non-range States, the scientific community, non-governmental and intergovernmental organizations, multilateral environmental agreements and UN agencies, as well as observers.

At the meeting, participants discussed, formulated and revised the Global Strategy for Great Apes, the GRASP Priority Plan 2013–2016, and the Rules for the Organization and Management of GRASP. They also participated in three Great Ape Seminars on illegal trade, the green economy and technology. The Council explored ways to reinforce the



Orangutan in Indonesia. © GRASP Partnership

fight against illicit trafficking and the use of modern technology, including tracking devices to follow the movement of poachers and mobile applications to reduce the demand for palm oil, whose expanding cultivation encroaches on the habitat of the great apes. The Council also stepped up efforts to promote the sharing of experience between stakeholders and the development of green tourism in protected areas and more.



Han Qunli, Director of the UNESCO Division of Ecological and Earth Sciences; Co-Chair John Mshelbwala, Nigeria; Co-Chair Jean-Patrick Le Duc, Head of International Relations at the National Museum of Natural History, France; Doug Cress, GRASP Coordinator; Neville Ash, UNEP. © Asociación GRASP

The Trifinio-Fraternidad Biosphere Reserve: a regional model for a green economy. The Permanent Delegation of the Federal Republic of Germany in collaboration with the MAB programme, and with the contribution of the Permanent Delegations of El Salvador, Guatemala and Honduras, jointly organized a conference on the Trifinio-Fraternidad Biosphere Reserve, as a regional model for a green economy. The conference, which took place at UNESCO Headquarters (12 September 2013), informed the Permanent Delegations and Observers to UNESCO on the creation and success of the Transboundary Biosphere Reserve, including its management, natural resources, biodiversity and the important role played by local communities.

Designated as a biosphere reserve in 2011, Trifinio-Fraternidad is considered an example of cooperation between national authorities. The representative of this transboundary biosphere reserve, Mr Miguel Pineda, highlighted the importance of international cooperation and outlined the achievements and scope of this site, which promotes the sustainable development of local communities in the region and their harmonious relationship with the environment.



Event 'Trifinio-Fraternidad Biosphere Reserve, as a regional model for a green economy'. ©UNESCO/Pilar Chiang Joo

The Representatives of the German Federal Ministry for Economic Cooperation and Development and the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, presented an overview of activities supported by Germany for the preservation of biodiversity. The Federal Government of Germany will invest €11 million to support conservation and life quality improvement programmes for residents and municipalities located in the Trifinio-Fraternidad Biosphere Reserve. This represents a significant contribution for around 200,000 inhabitants based in twelve municipalities (eight in El Salvador, two in Guatemala and two in Honduras) over an area of 500,000 km².

Mangroves and sustainable development: Latin American perspectives. An International Workshop on Mangroves and Sustainable Development, held in Santa Marta, Colombia (23–26 July 2013) gathered together forty-five participants representing national and local governments, national parks and NGOs, Afro-American and indigenous community leaders, members of academia, private sector delegates and independent consultants from Chile, Colombia, Costa Rica, Ecuador, Panama and Peru. The workshop was organized by UNESCO-Quito, the Permanent Commission for the South Pacific (CPPS), Conservation International (CI), and the Ministry of Environment and Sustainable Development of Colombia.

During the event, participants discussed environmental legislation and policies related to mangroves, as well as best practices and experiences of conservation and management of mangrove ecosystems. Topics included the sustainable use of resources, reforestation and ecological restoration, research and monitoring, and social, cultural and educational issues. A field visit to the nearby Ciénaga Grande de Santa Marta Biosphere Reserve was organized to visit the mangroves and interact with communities living inside the reserve. UNESCO-Quito has established a formal cooperation agreement with the intergovernmental Permanent Commission for the South Pacific and the NGO Conservation International to jointly address the issue of the sustainable development of mangroves. Following the International Workshop, and the recent celebration of the International Day in Defense of the Mangrove Ecosystem (26 July), the UNESCO-CI-CPPS initiative also published a report on successful experiences with mangroves and sustainable development in Latin America and the Caribbean, and developed a Regional Action Plan for the Conservation and Sustainable Use of Mangrove Ecosystems.



UNESCO Quito Panelists during the International Workshop on Mangroves and Sustainable Development. ©Ainhoa Mingolarra

Promoting transboundary management of natural resources in Central Africa. The African continent is endowed with a varied and rich biodiversity and natural resources, however sustainable management remains a challenge. As a result of its colonial past, the political boundaries separating African countries do not follow natural and geological features. The same landscapes and similar ecosystems traverse frontiers and are inhabited by the same communities, if not the same ethnic groups.

UNESCO plays an active role in supporting countries to manage their shared resources beyond these boundaries. In central Africa, the Organization is undertaking a feasibility study for the establishment of a transboundary biosphere reserve between Cameroon, Congo and Gabon. This proposal is founded on an intergovernmental cooperation agreement signed in 2005 by the countries to create and sustainably manage a homogeneous and coherent space known as the Tri-nationale Dja-Odzala-Minkébé (TRIDOM). A tri-national workshop organized by UNESCO in collaboration with the Ministry of Tourism and Environment of the Republic of the Congo was held in Brazzaville (6 June 2013) to launch the consultation process with the participation of stakeholders from the three countries.

Access to sustainable energy by empowering women from biosphere reserves in Rwanda. The Barefoot Solar Engineers (BSE) programme in Rwanda aims to promote renewable energy in remote villages by empowering women through innovative approaches. The project contributes to sustainable development at a grassroots level, and is particularly relevant to the MAB programme and its biosphere reserves in Africa, where the prevailing source of energy is wood.

The Barefoot College approach is to train a few members of each community to be 'Barefoot Solar Engineers' (BSEs). These engineers then install, repair and maintain solar lighting units for a minimum period of five years, and also set up a 'Rural Electronic Workshop' (provided by the City Council) to store components and equipment needed for the repair and maintenance of the units. The community pays the BSE to maintain the solar equipment, thereby generating a sustainable, green income.

UNESCO in partnership with Barefoot College and two NGOs, and with assistance from the Government of India, supported the training of four grandmothers from two villages situated in the Volcanoes Biosphere Reserve in Rwanda. This was followed by a three-month in-country training course by former BSEs of nine additional women in Bugeshi, Rwanda. UNESCO provided solar equipment for 100 households and the school in Nyarugina village. Beneficiaries testified to the benefits gained through the project, including safer lightning for their family, phone charging, and the capacity for students to study at night in better conditions. The solar lamp (one by household) also improves security when walking at night.

Showing Climate Change Impacts on Mountains of the World. With the generous support of the Government of Flanders (Belgium), the MAB programme and the International Hydrological Programme (IHP) developed an exhibition consisting of satellite images of different mountain regions worldwide, many of which are UNESCO Biosphere Reserves.

The exhibition, which was displayed on the exterior fences of UNESCO's Headquarters in Paris from November to December 2013, highlighted the critical functions of mountains and the implications of climate change for mountain ecosystems, water resources and livelihoods.

Mountains and their adjacent valleys occupy 24% of the Earth's surface and are home to 1.2 billion people. The importance of mountains as a source of freshwater justifies their reputation as 'water towers' of the world. They provide numerous and diverse sources of ecosystem services, with water supply being one of the most critical. About 40% of the global population depends indirectly on mountain resources for water supply, agriculture, hydroelectricity and biodiversity.



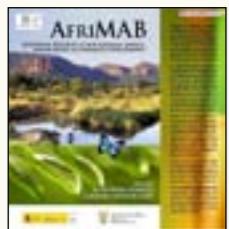
*Exhibition 'Climate change impacts on mountain regions of the world', UNESCO headquarter, Paris, France.
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Mountains are among the most sensitive ecosystems to climate change and are being affected at a faster rate than other terrestrial habitats. Climate impacts constitute a significant threat to mountain ecosystem services and the populations depending on them, and have considerable effects on water resources. Many glaciers are retreating under the influence of rising temperatures, making them key indicators of climate change. This exhibition was a contribution to the International Year of Water Cooperation (2013) and was undertaken in cooperation with the following partners: the Japan Aerospace Exploration Agency (JAXA), the European Space Agency (ESA), the United States Geological Survey (USGS) and Planet Action.

Nigardsbreen glacier, Norway. © Japan Aerospace Exploration Agency's (JAXA)

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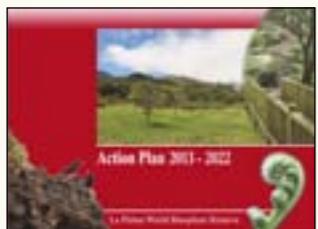
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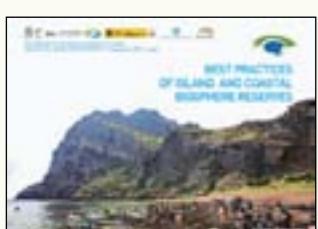
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Graphical design Martin Ackerl, Lois Lammerhuber

Typeface LAMMERHUBER by Titus Nemeth

Digital post production Birgit Hofbauer

Project coordination Johanna Reithmayer

Photography Cover, endpaper 1, pages 2, 4, 8, 12-13, 60-61: Lois Lammerhuber,
6-7: Wikimedia, 60-61, endpaper 2: Shutterstock

Managing director EDITION LAMMERHUBER Silvia Lammerhuber
EDITION LAMMERHUBER Dumbagasse 9, 2500 Baden, Austria
edition.lammerhuber.at

Published in 2015

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© UNESCO 2015
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ISBN Spanish Version 978-3-901753-91-6
ISBN French Version 978-3-901753-92-3
ISBN English Version 978-3-901753-93-0

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